



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

HA

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/649,427	08/26/2003	Charles R. Ruelke	SC12665TS	5204
23125 7590 12/27/2006 FREESCALE SEMICONDUCTOR, INC. LAW DEPARTMENT 7700 WEST PARMER LANE MD:TX32/PL02 AUSTIN, TX 78729			EXAMINER HA, DAC V	
			ART UNIT	PAPER NUMBER
			2611	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/27/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/649,427	Applicant(s) RUELKE ET AL.	
	Examiner Dac V. Ha	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 and 35-37 is/are rejected.
- 7) ☒ Claim(s) 21-34 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 1, 2** are rejected under 35 U.S.C. 102(b) as being anticipated by Womack et al. (US 5,982,819) (hereafter Womack).

Regarding claim 1, Womack discloses the claimed subject matter:

“an interface for interfacing with a host processor” (Fig. 4, elements 403, 401);

“an automatic gain control state machine coupled to the interface for receiving control information indicative of a modulation protocol, the automatic gain control state machine being selectably configurable for automatic gain control in accordance with any one of a plurality of modulation protocols” (Fig. 4, element 403; col. 9, lines 50-61).

Regarding claim 2, Womack further discloses “a storage location coupled to the interface for receiving and storing the control information and coupled to provide the control information to the automatic gain control state machine” in Fig. 4, elements 412, 410; col. 5, line 64 to col. 6, line 7).

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Art Unit: 2611

3. **Claims 14, 17-20, 37** are rejected under 35 U.S.C. 102(e) as being anticipated by Koizumi (US 6,965,656).

Regarding claim 14, Koizumi discloses the followings:

“a task specific AGC control circuit coupled to receive an indication of at least one signal characteristic and coupled to provide an AGC control signal for controlling gain of an AGC loop, wherein the AGC control circuit is configured to control the gain of the AGC loop in accordance with a plurality of states, each state corresponding to a selectable range of the at least one signal characteristic and to at least one programmable threshold defining at least one such range;

at least one gain control stage coupled to the task specific AGC control circuit, the at least one gain control stage controlling gain of a signal depending on the AGC control signal” in Fig. 1, 12, elements 53, 54a-54c, 31, 14, 61; col. 6, lines 54-67; col. 15, lines 23 to col. 16, line 45.

Regarding claim 17, see claim 14.

Regarding claim 19, Koizumi further discloses “wherein the task ... each range” in col. 2, line 23 to col. 5, line 33; col. 6, lines 54-67; col. 15, lines 23 to col. 16, line 45.

Regarding claim 20, see claim 13. Further, the claimed subject matter “initializing ... conditions” is taught in Fig. 1, element 23.

Regarding claim 37, see claim 13.

Claim Rejections - 35 USC § 103

Art Unit: 2611

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 35, 36** are rejected under 35 U.S.C. 103(a) as being unpatentable over Koizumi.

Regarding claims 35, 36, these claimed subject matter would have been application specific and preference, thus would have been obvious to one skilled in the art.

6. **Claims 3-8, 10, 11-13, 18, 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Womack in view of Koizumi (US 6,965,656).

Regarding claim 3, Womack discloses all the claimed subject matter, as stated above, except "at least one signal detector coupled to detect and provide an indication of a signal strength of the modulated signal to the automatic gain control state machine; wherein the automatic gain control state machine is configured to operate in each of a plurality of selectable states, each state being selected depending on a detected signal strength of the modulated signal". However, such claimed subject matter would have been easily realized by one skilled in the art as application specific. That is, Womack discloses automatic gain control (AGC) based upon control information from the DSP (Fig. 4, element 405), however, Womack doesn't provide detail regarding the AGC circuit since it is not the main invention in Womack. Further, concept of AGC circuit and its operation is widely known in the art. For example, Koizumi discloses one of the

conventional AGC circuit which utilizes detector (Fig. 12, element 31) for detecting a signal strength and utilize such information for controlling operation of the AGC.

Therefore, the claimed subject matter in claim 3 would have been obvious one killed in the art in view of Koizumi based on Womack.

Regarding claim 4, Koizumi further discloses:

“an intermediate frequency generation circuit including at least one of a mixer and a filter” (Fig. 1, element 58);

“an off-channel signal detector coupled to receive a radio frequency modulated signal on an input side of the intermediate frequency generation circuit to provide a digital indication of signal strength of the radio frequency modulated signal to the automatic gain control state machine” (Fig. 1, elements 21a, 22, 24; col. 10, lines 11-65);

“an on-channel signal detector coupled to receive an intermediate frequency modulated signal on an output side of the intermediate frequency generation circuit and coupled to provide a digital indication of signal strength of the intermediate frequency-modulated signal to the automatic gain control state machine” (Fig. 1, elements 21b, 22, 24; col. 10, lines 13-65); wherein the AGC circuit in Koizumi collectively includes all control that control that gain (of amplifiers) (col. 2, line 23 to col. 5, line 25).

Regarding claim 5, Womack further discloses “a storage location coupled to the interface for receiving and storing the control information and coupled to provide the control information to the automatic gain control state machine” in Fig. 4, elements 410, 412. Further, the claimed subject matter “an attenuation circuit coupled to receive at

least one attenuation control signal from the automatic gain control state machine, the automatic gain control state machine providing the at least one attenuation control signal depending on the control information stored in the storage location and the signal strengths of the modulated signals” would have been obvious to one skilled in the art as application specific since the AGC circuit would provide control for increasing or decreasing the gain of the amplifier.

Regarding claim 6, Koizumi further teaches “a variable amplifier” in Fig. 1, element 52.

Regarding claims 7, 8, these claimed subject matter would have been easily realized by one skilled in the art as preference.

Regarding claim 10, Womack further discloses the claimed subject matter “wherein the interface is a serial peripheral interface, the apparatus further comprising the host processor, the host processor being coupled to the serial peripheral interface to provide the control information indicative of the modulation protocol to be used by the apparatus for communication with other apparatus using the modulation protocol” in Fig. 4, element 405; col. 5, lines 7-21; col. 5, line 53 to col. 6, line 26.

Regarding claims 11-13, these claimed subject matter would have been design preference and specific, thus would have been optional to one skilled in the art.

Regarding claim 18, the claimed subject matter “wherein information from the host processor includes at least one of the group consisting of signal range information, signal strength threshold information, automatic gain control update rate information,

and automatic gain control step size information” would have been optional to one skilled in the art based on Womack.

Regarding claim 19, the claimed subject matter “wherein the task specific processor is configured to operate according to a gain control function which is continuous within each of a plurality of signal strength ranges and which is nondifferential at each threshold at an edge of each range” would have been application specific and would have been easily realized by one skilled in the art.

7. **Claims 15** is rejected under 35 U.S.C. 103(a) as being unpatentable over Koizumi in view of Womack.

Regarding claim 15, Koizumi discloses all the claimed subject matter, as stated above, except “wherein the at least one programmable threshold is selected based upon which one of a plurality of modulation protocols is selected”. Womack discloses method for AGC control taking into account of “modulation protocol” (col. 9, line 51-61). Thus, it would have been obvious to one skill in the art to include such teaching from Womack into Koizumi, as preference, to even further optimize the controlling for the AGC.

8. **Claims 9-10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Womack in view of Koizumi as applied to claim 4 above, and further in view of Maru (US 6,553,084).

Regarding claim 9, the combination of Womack and Koizumi discloses almost all claimed subject matter as stated above. Further, Koizumi discloses “a variable gain amplifier coupled to receive an input radio frequency signal and to provide an amplified

radio frequency signal" in Fig. 1, element 52. The aforementioned combination differs from the claimed invention in that it does not disclose "a DAC coupled to receive a digital control signal from the automatic gain control state machine and to provide an analog control signal to the variable gain amplifier depending on the control information and the signal strengths of the modulated signals". However, such claimed subject matter would have been realized by one skilled in the art as conventional. That is, the AGC control signal would be converted to appropriate signal for controlling the amplifier (Koizumi, col. 8, lines 1-3). Particularly, in Maru, such conversion includes an DAC (Fig. 1, element 12) as conventional.

Regarding claim 10, Womack further discloses the claimed subject matter "

Allowable Subject Matter

9. **Claims 21-34** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

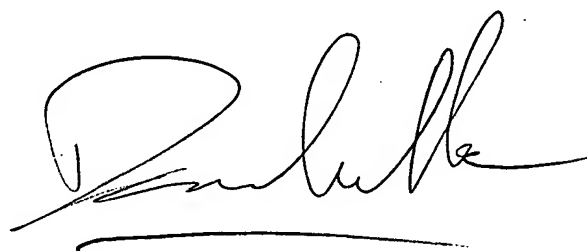
10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Patel et al. (US 6,480,528).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dac V. Ha whose telephone number is 571-272-3040. The examiner can normally be reached on 5/4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-3086. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'Dac V. Ha', with a horizontal line underneath.

Dac V. Ha
Primary Examiner
Art Unit 2611